

Forest Management
in the
Maya Biosphere Reserve:
So Far, So Good

USAID/G-CAP
Special Objective 5

**Improved Natural Resource Management
and Conservation of Biodiversity**

U.S. Agency for International Development

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Nota: El mejor beneficio de este documento se obtiene leyendolo en su versión electrónica disponible en CD-ROM (en MS Word 97) para aprovechar de los vínculos con numerosos otros archivos electrónicos a través del *Sistema de Información de Áreas Protegidas de Petén* ([SI PETEN](#)). Haciendo clic en el texto azul subrayado se accesan algunos de los documentos a los cuales se refiere este informe y muchos otros que permiten profundizar y conocer detalles sobre el tema. Se regresa al punto de partida con las flechas de la barra de herramientas del Web.

Acknowledgements

This kind of assessment, especially because of the short time available, cannot be done without the collaboration of those who are fully immersed in forest management. We are grateful to the many members of the communities and to the colleagues who generously gave us their time and informed us about their experiences. Although we list our primary contacts in Annex 1, many others who have helped are not forgotten. We are especially thankful to those who have labored over the revision of several drafts of this report and suggested improvements: Kris Merschrod, Robert Lester and Howard Clark of the Chemonics team; Fernando Carrera, Spencer Ortiz, Cornelius Prins, Mauro Salazar, Byron Castellanos and John Canning. They and many others have helped us to compile part of the impressive documentation that exists about this subject. Those who guided us on our visits to the communities and forests gave us insights we could not get otherwise. Our only hope to compensate all of them for this collaboration is that this report might lead to consolidating the impressive advances that they have been able to achieve in managing the forests of the Maya Biosphere Reserve.

Henry Tschinkel

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Resumen Ejecutivo

[TO BE TRANSLATED]

Executive Summary

Para asegurar el manejo sostenible de la Zona de Usos Múltiples (ZUM) de la Reserva de la Biosfera Maya (RBM), en 1994 CONAP optó por una política de otorgar el manejo de los bosques de la ZUM a grupos comunitarios cercanos y a la industria maderera. Al mismo tiempo CONAP creó los mecanismos para regular el manejo forestal de las cooperativas y propietarios privados en la Zona de Amortiguamiento (ZAM). El manejo forestal de las concesiones y cooperativas ha logrado impresionantes avances en estos primeros cinco años. La presente consultoría pretende ayudar a orientar el apoyo que requiere el manejo forestal en la RBM de ahora en adelante.

Three types of entities manage forests in the MBR:

- Concessions allocated to communities for the management of government owned forests in the Multiple Use Zone.
- Concessions allocated to industry for the management of government owned forests in the Multiple Use Zone
- Management of forests owned by cooperatives and “parcelamientos” in the Buffer Zone.

The experience, status and contractual obligations of these arrangements vary widely.

Los logros principales de las concesiones y cooperativas forestales

- El bosque se mantiene intacto debido al control de invasiones, control de la tala ilegal de madera, reducción de incendios forestales y el manejo técnicamente apropiado.
- Se derivan beneficios sociales y económicos del bosque a raíz del aprovechamiento en común de los productos forestales, principalmente de la madera, por las comunidades. Estos beneficios incluyen ingresos económicos a los miembros de la comunidad, ingresos para obras comunitarias, el cambio de actitud respecto al bosque y el fortalecimiento de la identidad comunitario
- Se ha creado la infraestructura organizatoria y técnica necesaria para avanzar, principalmente la capacidad técnica a nivel de las instituciones de apoyo, y la organización y capacidad para la producción a nivel de cada comunidad.

At present financial viability of the forest concession and cooperatives seems promising as indicated by high revenue/expense ratios and Net Present Values. However, a serious decline in the financial conditions related to use of the forest is likely to cause a drastic degradation of the biophysical environment as well.

Opportunities

If done correctly forest management in the MBR can build on the successes to date to create the following major impacts.

- Conservation of more than 600,000 ha of forest
- Viable forest enterprises that improve the income of the communities, cooperatives and industries that operate them

Once all the Forest Management Units are in production, over 60,000 days of rural employment will be generated. These will provide Q.2.3 million in revenues to the rural communities of Peten. Additional unskilled and skilled employment opportunities will be generated in the milling and value added processes.

- Contribution to stability and economic development of the northern Petén

By the end of 2001 the annual harvest area should reach 10,182 ha, producing a total volume of 65,430 m³, including 52,961 m³ of secondary species and 12,469 m³ of mahogany per year.

This wood is supplied as a steady flow upon which industry, markets and long-term alliances can be built, rather than the “boom and bust” of traditional forest mining.

Various taxes and forest fees associated with the harvest of wood should generate Q.2.7 million to CONAP. In additions, a number of other revenues will accrue to the state, including taxes generated by the harvest of NTFPs, IVA, and income taxes.

Recommendations to strengthen forest management in the concessions and cooperatives of the MBR

To counteract the risks of failure of this fragile system and overcome current constraints, forest management in the MBR requires continued support but with several new dimensions. This report includes an annex with a draft of a proposal of specifically what USAID should do.

1. Management, administration and internal organization of the communities

Most communities suffer from numerous organizational, administrative and management problems. However, the necessity of working together on a common enterprise has also had beneficial effects of uniting the community and encouraging new organizational arrangements.

1.1. Promote systems and procedures that make corruption difficult

CONAP should encourage the following of all community concessionaires and cooperatives:

- ◆ The acceptance of minimum accounting standards and submission to at least one external audit annually contracted with a reputable firm. Training should be provided to the groups in the use of the new practices.
- ◆ Publication of the conditions of all sales of forest products after they have been concluded, including contracts, volumes and prices.
- ◆ Within the internal bylaws, a general assembly should be required at the end of each harvest season in order to explain the financial status of the year's activities and discuss the utilization of the revenues.

1.2. Create and train a two-tiered organization consisting of a Board of Directors and Management

Separate the function of a board of directors and of managers in different individuals. Not only will this make corruption more difficult, but it will also increase the probability that the managers and other specialists will stay in their positions long enough to improve their skills.

2. External relationships

2.1. Let communities choose

CONAP with USAID support should limit their support to communities through the NGOs. Communities should receive a maximum of two years of free assistance. Starting in the third year, the forest, through the profits realized by the communities from the extraction activities, should pay for a gradually increasing share of any assistance they might need. At that time the communities should be given the right to choose from which NGO or private sector agent they wish to purchase services and of which type. By year five outside subsidized support would be minimal.

2.2. Improve negotiation skills and contract management skills

Special emphasis should be placed on preparing the community groups to interface with the private sector, including their technical assistance provider, buyers and business partners. If increased understanding of the timber industry can be interjected within the system, better decisions can be made by the communities and more realistic contracts negotiated.

2.3. Encourage longer-term contractual relationships with industry or buyers

Longer-term relationships are essential to promote investment in secondary processing, the development of new products and the transfer of technology. Multi-year harvest plans with detailed volume information may prove useful to foster longer-term contracts. Another mechanism is the establishment of a voluntary review and arbitration council.

3. Product and market development to utilize secondary species

3.1. Strategic Business Relationships

The incipient tripartite strategic business relationships between

- ♦ communities low on capital and technological and managerial know-how,
 - ♦ current industry that is antiquated and under-capitalized, and
 - ♦ outside buyers and investors
- must continue to be strengthened.

Communities should not aspire, given their low level of management capacity and access to capital, or be encouraged to be producers of finished products. However, in addition to those that already do so, some other communities might be assisted with portable sawmills for processing residual woods or lower value logs.

Industry cannot be complacent with the marketing of mahogany and *cedro*. They should develop longer-term business plans that identify diversified products and markets for secondary species. Industry should likewise benefit from their relatively high volumes of mahogany and *cedro* to attract international investors and buyers to form joint ventures.

3.2. Diversify production to match managerial capacity

Industry must lock in sufficient supplies of raw materials of several species that they can profitably utilize. They could do this by assisting the development of local associations of concessionaires or forming strategic business relationships with several concessions that have similar forest types and species mixes. An increasing number of specialized secondary processors should be encouraged in order to use an increasing number of species.

3.3. Use certification as a tool to open new markets.

Unfortunately to date, attention has been placed on certifying forest management activities rather than utilizing certification as the market incentive tool that it was designed to be.

3.4. Non-timber forest products standards and monitoring

CONAP should be encouraged to develop, disseminate and implement technical management standards for xate and allspice, including norms to avoid harvest of poor quality xate leaves. Monitoring and evaluation of the implementation of the norms should be integrated with CONAP's current monitoring of logging in order to keep costs low.

4. Financial viability of forest management

4.1. Technical assistance should be paid by the forest through the community

All subsidized technical assistance costs should be controlled in the future. This will allow the project to determine the returns on this investment by the donor, the benefits derived by the communities and permit comparative analysis of the technical assistance providers.

Technical assistance subsidized by USAID should ascend to the next level of product and market development, entrepreneurial training for communities and industry alike, and should be provided by institutions capable of doing so.

4.2. Attract Outside Capital, Technologies and Expertise

The concessions should use their intrinsic advantages to attract outside investors who can provide additional capital, technology and expertise. USAID should provide technical assistance in order to facilitate these linkages. Stability in the current concessions and policies is vital in order for this to happen.

4.3. Capitalize operations through mahogany and *cedro*

Given current mahogany volumes most economic data looks promising. However given the doubts about the regeneration of caoba and other valuable shade intolerant species, there should be major concerns about the sustainability of the current forestry model and its financial viability. The current volumes of mahogany should be seen as an opportunity to provide the economic basis for forest management to work, partly by using these early high revenues streams for reinvestment in value added processing.

5. Technical sustainability of forest management

5.1. Analysis and utilization of data from permanent plots

The CATIE/CONAP Project should prepare and implement guidelines for choosing location of plots, treatments and numbers to be established by forest type.

5.2. The required planning and reporting processes should be revisited

A commission should analyze management plans, EIAs, POAs, and annual reports and determine which information is indispensable and what amounts to bureaucracy and administrative requirements that can be reduced.

5.3. Efficiencies

USAID should provide training, not necessarily free of charge, to industry and community groups on how to inject efficiencies into their operations to increase recovery rates and foster the utilization of secondary species.

6. Information management

6.1. Create a documentation service

Create a documentation service in CONAP. Require all actors who produce documents and maps relevant to the protected areas of the Petén to deposit paper and electronic copies in this center.

6.2. Stop financing studies that have no clear application

During the process of making the annual work plans, USAID needs to be more critical in financing consultancies and the preparation of documents.

7. Administration by CONAP of forest management in the concessions and cooperatives

7.1. Amend the regulations for the concessions and the contracts with specific sanctions for minor infractions

CONAP Region 8 should prepare a list of infractions and the corresponding sanctions and submit to the CONAP Board for approval as an amendment to the regulations for the concessions (*normativas*).

7.2. Streamline monitoring

Agreement needs to be reached between CONAP, USAID and SmartWood so as to combine their efforts at monitoring and reduce the currently prohibitively expensive inspections to the minimum needed to measure compliance.

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1. Background

El Proyecto de la Biósfera Maya, con el apoyo financiero de la USAID y otros organismos, desde 1990 ha estado fomentando la conservación y el manejo de esta área protegida de 1.5 millones de hectáreas. Unos 800,000 ha han sido designados como Zona de Usos Múltiples (ZUM) donde legalmente se permite el aprovechamiento de los recursos naturales bajo ciertas restricciones. Por ley toda la tierra de la Zona Núcleo y la ZUM es propiedad del estado de Guatemala y no se permite ningún título privado. Para asegurar el manejo sostenible de la ZUM, en 1994 el Gobierno de Guatemala optó por una política de otorgar el manejo de los bosques de la ZUM a grupos comunitarios cercanos y a la industria maderera. A finalizar el año 1999 CONAP había firmado contratos de concesión por casi toda la ZUM, excepto por dos Unidades de Manejo Forestal (ver Table 1). Al mismo tiempo CONAP creó los mecanismos para regular el manejo forestal de las cooperativas y propietarios privados en la Zona de Amortiguamiento (ZAM).

El manejo de las concesiones y cooperativas ha logrado impresionantes avances en estos primeros cinco años. En vista del final del Proyecto de la Biósfera Maya en 2001, ha llegado el momento de decidir como orientar el apoyo que requiere el manejo forestal en la RBM de ahora en adelante. Para ayudar en este proceso USAID/Guatemala ha contratado a Chemonics International para efectuar una revisión del Proyecto de la Biosfera Maya. Este informe cubre un aspecto específico de esta evaluación.

2. Terms of reference and methods used

USAID/Guatemala has contracted with Chemonics International to evaluate its assistance to the Maya Biosphere Reserve (MBR). Chemonics in turn hired John Nittler and Henry Tschinkel for 10 and 11 workdays respectively to cover the subject of forest management through concessions and cooperatives. Specifically the task was to describe and evaluate the current status of forest management and to propose how to strengthen it, including through possible further assistance by USAID. Tschinkel had previously worked on a related task under a contract with the CATIE/CONAP Project, also with funding from USAID. The result of that work including the draft report (Tschinkel 2000), documentation (Annex 4) and the experience gained from interviews and numerous field visits, were used as input to this consultancy with Chemonics.

After review of the ample documentation available, the two consultants interviewed the individuals indicated in Annex 1 and visited the forest of the UMI cooperative. Nittler concentrated on the financial aspects of forest management. The progressive drafts of this report were reviewed by the other three members of the Chemonics team and several Petén foresters. A one-day workshop organized by the team helped obtain feedback from many of the institutions involved. The methodology applied by the consultants is described in detail in Annex [6](#).

3. Diagnosis of the current status of forest management in the MBR

3.1. The status of the areas under forest management

Table 1 lists all of the Forest Management Units officially under management or proposed. Because a few started in 1994 while others have not even begun, their experience and status vary widely. Nevertheless, technical standards required of forest management are the same for all Management Units. Note however that contractual obligations are different for the three types of entities managing forests in the MBR:

- ◆ Concessions allocated to communities for the management of government owned forests in the Multiple Use Zone. Some of these communities are located within their concession areas with traditional links to that forest, others are located outside.
- ◆ Concessions allocated to industry for the management of government owned forests in the Multiple Use Zone
- ◆ Management of forests owned by cooperatives and "parcelamientos" in the Buffer Zone

For a more detailed description see the information system called [\(SI PETEN\)](#) available on CD-ROM (Annex 4).

Table 1. Forest units under management in the MBR

No	Forest Management Unit (1)	Entity Managing the Unit	Support NGO	Year Established	Total Area ha	Total Production Forest ha	Area harvested annually ha	Cutting Cycle years
COMMUNITY CONCESSION								
1	San Miguel C	Asociación de Productores de San Miguel (APROSAM)	CATIE/Olafo	1994	7,039	4,800	80	60
2	La Pasadita C	Comité Pro Mejoramiento	CATIE/Olafo	1997	18,817	12,043	482	25
3	Carmelita C	Cooperativa Integral de Comercialización "Carmelita" R.L.	PRO-PETEN	1997	53,797	28,371	709	40
4	Rio Chanchich C	Sociedad Civil Impulsores Suchitecos	NPV	1998	12,217	10,000	333	30
5	San Andres CP	Sociedad Civil Asociación Forestal Integral San Andrés (AFISAP)	PRO-PETEN	1999	51,939	48,883	1,120	40
6	Uaxactun CP	Sociedad Civil Organización Manejo y Conservación	NPV	1999	83,558	28,141	703	40
7	Chosquitan CP	Sociedad Civil Laborantes del Bosque	NPV	1999	19,300	14,914	450	30
8	Las Ventanas	Sociedad Civil Arbol Verde	NPV	No contract yet	64,973	33,079	1,100	30
9	Cruce la Colorada	Asociación	Centro Maya	No contract yet	20,815	17,621	704	25
10	La Colorada	Asociación	Centro Maya	No contract yet	22,885	15,866	515	30
11	Yaloch	Sociedad Civil El Esfuerzo		Not yet bid	25,387	Est 16,500	550	30
12	La Unión	Sociedad Civil Custodios de la Selva		Not yet bid	21,176	Est 15,000	500	30
Subtotal					401,903	245,218	7,246	

No	Forest Management Unit (1)	Entity Managing the Unit	Support NGO	Year Established	Total Area ha	Total Production Forest ha	Area harvested annually ha	Cutting Cycle years
INDUSTRIAL CONCESSION								
13	La Gloria	Baren Industrial	n/a	1999	66,458	Est 45,000	1,500	30
14	Paxban	PROFIGSA	n/a	1999	65,755	43,698	1,456	30
Subtotal					132,213	88,698	2,956	
COOPERATIVE								
15	Bethel C	Cooperativa	C. Maya	1994	4140	2700	100	25
16	La Lucha CP	Cooperativa	C. Maya	1996	3915	1950	100	25
17	La Técnica C	Cooperativa	C. Maya	1995	4590	2250	100	25
18	Monte Sinai	Cooperativa	C. Maya	1996	1035	800	100 Every 2 years	25
19	Unión Maya Itzá	Cooperativa	C. Maya	1999	6165	4932	130	25
Subtotal					19,845	12,632	580	
PARCELAMIENTO								
20	Retaltecos	Parcelamiento	C. Maya	1999	1575	788	Variable	25
21	La Felicidad	Parcelamiento	C. Maya	1999	1125	700	Variable	25
22	Yanabí	Parcelamiento	C. Maya	1999	585	300	Variable	25
Subtotal					3,285	1,788		
TOTAL					557,246	348,336	> 10,782	

(1) **C** = Certified

CP = Certification in process as of September 2000. Field inspection completed.

3.2. Logros principales

Los logros de las concesiones y cooperativas forestales han sido impresionantes. Varios documentos los describen, de tal manera que aquí se presenta un breve resumen (Galvez y Carrera 1999, borrador de página web del Proyecto CATIE/CONAP 2000, Proyecto CATIE/Olafo 1998)

3.2.1. El bosque se mantiene intacto

Las áreas concesionadas en la Zona de Uso Múltiple de la RBM conservan su cobertura forestal. Con esto se ha cumplido el objetivo principal de la creación del sistema de concesiones. Los concesionarios consideran que ellos son los "propietarios" del área cubierta por su contrato de concesión y en general hay una tradición de respeto por la propiedad entre la población.

El mapa de cambio de cobertura forestal muestra casi ninguna pérdida del bosque dentro de las concesiones desde 1995, lo que es un contraste fuerte con la destrucción del bosque en varios de las zonas núcleo y la zona de amortiguamiento. Las razones son las siguientes:

3.2.1.1. Control de invasiones

Los concesionarios y cooperativas evitan la invasión de su bosque por extraños. Respetan el límite del bosque descrito en el contrato. Controlan los límites de su terreno como si fueran los propietarios.

3.2.1.2. Control de tala ilegal de madera de las concesiones y cooperativas

Durante 1999 y 2000 no se han reportado talas ilegales significativos de madera. Antes de crearse las concesiones el robo de especies preciosas era común y las comunidades no tenían ninguna base legal de evitarlo.

3.2.1.3. Reducción de incendios forestales

Hay mucho menos incendios forestales y área quemada dentro de las concesiones que en los bosques afuera de ellas (ver mapa de incendios). Por ejemplo durante la temporada 2000, se quemó 22% de la Zona Núcleo y 35% de la ZAM, pero solamente 3% de la ZUM (López et al. 2000). Los concesionarios no solamente patrullan y detectan los incendios sino utilizan los ingresos derivados de la venta de madera para compensar a aquellos miembros de la comunidad que ayudan con el combate.

3.2.1.4. El bosque se maneja en forma sostenida

La certificación de dos cooperativas (Betel, La Técnica) y cuatro de las concesiones (San Miguel, La Pasadita, Carmelita, Río Chanchich) con la participación de SmartWood, con otros cuatro Unidades de Manejo en proceso (La Lucha, San Andrés, Chosquitán, Uaxactún), es demostración de que se ha iniciado el manejo del bosque a un nivel a la altura de los estrictos estándares internacionales del Forest Stewardship Council (FSC). Los 100,000 ha ya certificadas coloca Guatemala en primer lugar en el mundo en cuanto a bosques naturales comunitarios certificados. Las principales prácticas del buen manejo han sido transferidos a los concesionarios.

3.2.2. *Se derivan beneficios sociales y economicos del bosque*

El aprovechamiento en común de los productos forestales, principalmente de la madera, por las comunidades no solo está arrojando ingresos netos significativos sino tiende a fomentar importantes beneficios sociales y organizatorios (ver 3.3.2 y 3.4.3).

3.2.2.1. Ingresos económicos a los miembros de la comunidad

Sin duda la expectativa de ingresos es el motor detrás de los logros alcanzados por el manejo forestal. Todas las concesiones pagan a sus miembros por los días trabajados con un jornal mas elevado (entre Q30 y 75) que los jornales corrientes (Q.25). Además, algunos de los grupos dividen parte de los ingresos netos entre los miembros. El monto de estos ingresos que le toca a cada miembro es muy variable pero a veces ha alcanzado hasta Q. 27,000 por año.

3.2.2.2. Ingresos para obras comunitarias

Los grupos reservan parte de los ingresos netos para capital operativo del año siguiente y para la adquisición de equipo de trabajo. Pero frecuentemente

también se destina una parte para obras comunales tales como ampliación de la escuela, instalación de un sistema de agua en La Pasadita, y mantenimiento de la carretera por los Suchitecos.

3.2.2.3. Cambio de actitud respecto al bosque

Aunque difícil a cuantificar, en las conversaciones, reuniones y decisiones sobre el aprovechamiento se nota una actitud más positiva y realista respecto al bosque de la que se percibía hace años. Los miembros de las comunidades entienden perfectamente que el bosque bien manejado es parte de su sustento económico. Su disponibilidad para ciertos trabajos no remunerados y su afán de aprender los aspectos técnicos de las operaciones son muestras de esta nueva actitud realista.

3.2.2.4. Fortalecimiento de la identidad comunitario

La adjudicación de la concesión al grupo comunitario ha impulsado el trabajo productivo en común a largo plazo, algo relativamente nuevo para la mayoría de estas comunidades. Esto ha fortalecido la identidad de la comunidad y su colaboración en otros esfuerzos aparte de las concesiones (tales como en Carmelita donde la anterior comercialización individual de xate ahora se hace en conjunto aportando para un fondo común para capitalizar esta actividad). Los grupos han madurado y su cohesión ha mejorado.

3.2.3. *Se ha creado la infraestructura organizatoria y técnica necesaria para avanzar*

3.2.3.1. Capacidad técnica en el manejo forestal y otros campos relevantes a nivel de las instituciones de apoyo

La necesidad de una amplia gama de asistencia a las comunidades y la disponibilidad de fondos de donantes para pagar por estos servicios ha causado la creación y el fortalecimiento de numerosas instituciones. La cantidad, calidad y el nivel de sofisticación de los servicios que estas instituciones proveen a los concesionarios y cooperativas han incrementado enormemente desde 1994. Al contrario de hace unos años, en estas instituciones hoy día se encuentran capaces líderes, técnicos y especialistas, muchos de ellos Peteneros que se han superado profesionalmente.

3.2.3.2. Organización y capacidad para la producción a nivel de cada concesión

Solamente 4 de los 22 operaciones han efectuado 4 aprovechamientos, 8 otras, incluyendo las dos industriales, solamente un aprovechamiento. En este corto tiempo muchos de los miembros de las comunidades han hecho grandes avances en su capacidad de manejar el bosque, especialmente en cuanto a las prácticas de manejo forestal y aprovechamiento, en los cuales algunos grupos están cerca de poder actuar solos, sin mayor asistencia.

3.2.3.3. Comienzos de la federación entre comunidades manejando su bosque

Los concesionarios comunitarios y las cooperativas se están dando cuenta de la necesidad de unirse para vender y para representar sus intereses. Con todos sus limitantes de representación, la Asociación de Comunidades Forestales de Petén (ACOFOP) es un paso en esta dirección para los concesionarios. El ambiente parece propicio para lograr una colaboración entre

concesiones, parecido a la Sociedad de Cooperativas Agroforestales (SCAF) del Río Usumacinta fundada en 1998.

3.3. The financial environment

The biophysical environment of the MBR has received much attention. The financial environment much less. Yet a decline in the financial conditions and processes related to use of the forest is likely to cause a drastic degradation of the biophysical environment as well.

3.3.1. *Factors affecting the financial viability of the forest concessions and cooperatives in the MBR*

There are many factors that vary tremendously between the 14 concessions and 5 cooperatives and 3 *parcelamientos*, which influence the financial viability of any forest management operation. These, among others, include: the size of the concession or cooperative forest, the quality of the forestry resource and more specifically the volumes of valuable species available for harvest, markets for lesser known species and lower lumber grades, the harvest of non-timber forest products, the organizational capacity and efficiency of the managing entity, and the costs imposed by taxes and other bureaucratic requirements. General statements about the financial viability of the concessions should be taken in light of this variety of factors. Below is a summary of these variables:

3.3.1.1. Extent of the forest:

The size of individual forest concessions range from the smallest, that of San Miguel with 7,039 ha to the largest, that of Uaxactun with 83,558 ha. The cooperatives are smaller however, with an average forest size of only 2,678 ha. The areas allowed to be harvested annually range from 80 to 1,500 ha.

3.3.1.2. Forest quality and abundance of valuable species:

The quality of the forest is largely judged by the abundance of valuable species since for most concessions and cooperatives, mahogany and *cedro* are the primary species harvested. Volumes of these most valuable species range from less than 0.4 m³ to nearly 2 m³ per ha. In the poorest forests, according to the approved forest management plans, up to 75% of the commercial trees are left standing while in the better forest, management plans allow for the harvest of up to 90% of the commercially valuable trees.

3.3.1.3. Markets for lesser known species and lower lumber grades:

The international marketing of lesser-known species is incipient, at best. Reported export prices are 30-70% of the prices paid for *cedro* and even less if compared with mahogany. Prices paid for logs or standing trees for species other than *cedro* and mahogany are extremely low, ranging from Q0.50 to Q0.75 per bdf-Doyle compared to Q4-5 for the more valuable species.

Markets for lower grades of lumber of mahogany and *cedro* appear good. For example, in efforts to increase recovery in the Cooperative Union Maya Itzá, they were able to sell branches and other blocks of wood in the forest at Q1 bdf-Doyle. Many of the lower grades and shorts of mahogany lumber sell for Q3 to Q6 per bdf in the national market.

3.3.1.4. Organizational capacity:

The organizations, and their members, involved in the management of forest lands in the MBR are tremendously diverse, ranging from community groups, of various sizes, backgrounds and types, to large industrial holders. They can be grouped as follows:

- Communities with long-term ties to the forest (4)
- Communities with stronger agricultural backgrounds (7)
- Cooperatives and parcelamientos (6+2=8)
- Industrial concessionaires (2)

All but the latter group of industrial holders have minimal capital investments in the forestry sector compared to the raw material source they manage. Although this is changing as the Suchitecos and Los Laborantes have invested in modest milling capacity this year. Industry, although better capitalized, is not making sufficient capital investment in order to process and market secondary species. The community groups are composed of numerous members (29 -372 members) and in some cases, the members are from up to nine communities. Their experience working in the management of forests for wood products collectively ranges from 1-6 years, although members of the Suchitecos, San Andrés and Los Laborantes and individuals in other groups have worked in the logging sector for many years. While it was impossible to discern community organizational capacity for each area, sufficient was learned to cite the lack thereof as a major obstacle. On the other hand, the industrial concessionaires were selected based partly on their managerial, technical and economic capabilities and their experience in the forestry sector in the Peten.

3.3.1.5. Taxes and bureaucratic costs:

The forest tax paid by cooperatives, as private property owners, is that established by INAB which is 10% of so called "official prices" (Q680/m3 for mahogany and *cedro* and Q86 for the less valuable species). Community concessions pay the tax at the same INAB rate plus an agreed upon fee per hectare ranging from Q5 -10 over the entire area of their concession on a pre-arranged schedule during the 25 year period of the concession. Industrial concessions pay tax at the INAB rate plus 50% of the "real prices" established by INAB for the valuable species and 25% of the "real price" established for less valuable species that they harvest. They do not pay an area-based fee. All of the above also pay Q15 per truck for a transport permit. For each export permit CONAP requires payment of Q75 for a "No-CITES" certificate. In addition the municipalities of San Andrés and Melchor charge a modest *arbitrio municipal*. (To charge this *arbitrio* the *Superintendencia de Administración Tributaria* (SAT) must first authorize the municipality to do so. The other municipalities have not requested this authorization). A small tax is also levied on all bills extended (*impuesto de facturación*). All of these taxes and fees, except the municipal taxes, the *impuesto de facturación* and the IVA, flow into CONAP's *Fondo Privativo*. See Table 2.

Table 2. Fees and taxes paid by forest management

Tipo de cobro	Concesión Comunitaria	Concesión Industrial	Privado, Cooperativa
PAGADO AL FONDO PRIVATIVO DE CONAP			
Derecho de concesión	Se paga una sola vez, con 3 años de gracia y luego en 10 cuotas. Q.10/ha	No aplica	No aplica
Tarifa forestal cobrado sobre la madera extraída	No aplica	Porcentaje del valor oficial que INAB asigna a la madera anualmente: Madera preciosa= Q680x50%=Q340/m3 Madera secundaria= Q86x25%=Q21.50/m3	No aplica
Impuesto forestal	10% del valor oficial que INAB asigna a la madera anualmente	10% del valor oficial que INAB asigna a la madera anualmente	10% del valor oficial que INAB asigna a la madera anualmente
Tarifa xate	Q.0.05/libra, pagado por la empresa de exportación	Q.0.05/libra, pagado por la empresa de exportación	Q.0.05/libra, pagado por la empresa de exportación
Tarifa pimienta	Q.2.00/libra, pagado por la empresa de exportación	Q.2.00/libra, pagado por la empresa de exportación	Q.2.00/libra, pagado por la empresa de exportación
Tarifa chicle			
Guías de transporte	Q.15 c/u	Q.15 c/u	Q.15 c/u
Docum. No-CITES	Q.75/exportación	Q.75/exportación	Q.75/exportación
PAGADO A LOS MUNICIPIOS			
Arbitrio municipal	% del valor oficial que INAB asigna a la madera	% del valor oficial que INAB asigna a la madera	% del valor oficial que INAB asigna a la madera
PAGADO A LA TESORERIA DE LA NACION			
Impuesto facturación	% del total de todas las facturas extendidas	% del total de todas las facturas extendidas	% del total de todas las facturas extendidas
IVA	10% sobre la venta facturada	10% sobre la venta facturada	10% sobre la venta facturada

Other bureaucratic requirements are similar between the different types of forest operators. All are required to comply with general forest management plans utilizing the same guidelines, annual operating plans, environmental assessments, permanent sample plots, reports and so on. All concessions are required to be FSC certified within three years. One major difference however is that to date, the community concessions and cooperatives have been largely subsidized in the completion of these requirements. These subsidies as well as the tax preference given to communities allows the communities to attract

industrial buyers and capture fairly high rents (\$176 m3 on mahogany and \$21 m3 for secondary species using a conversion factor of 220 bdft Doyle/m3 of standing timber. See Annex 2).

The payment made to SmartWood for the initial FSC certification and yearly audits is negotiable and this cost is insignificant (Q0.032/bdft) compared to the other costs of producing lumber (Carrera 1997, Sage 1997). However, the cost of improving operations so as to meet and maintain the certification conditions can be substantial.

It is more economical for the companies with industrial concessions to harvest their own wood than source from outside. (See Annex 2). They would only purchase from communities if they have excess capacity or if the margin on processing a specific species, mahogany for example, is greater than that for some of the secondary species. Then they may substitute outside material for their own. Therefore it is also important to include companies that do not have concessions in future project plans. They are the most likely business associates for the community concessions.

3.3.1.6. Non-timber forest products:

NTFPs are extracted to one extent or another in all areas under forest management and their financial contribution is significant, especially for xate and allspice. Although optimistic claims are often made and projections are available, we were not able to locate reliable data on actual costs and revenues. Record keeping needs to be improved for these products. One reason for the paucity of data seems to be that individuals harvest these products whereas the groups harvest the wood.

3.3.2. *Financial viability of the forest concession and cooperatives:*

In order to determine the financial viability of the existing concessions and cooperatives, as much cost, income and investment data was collected as possible (See Annex 3 for a summary). In general, for community forest there was an amazing amount of data available. This accomplishment is largely due to the NGOs involved in supporting the communities and the fact that the CONAP annual reports require financial data. Unfortunately, in many cases there was a communication gap between the accountants and foresters, resulting in the fact that much of the information was poorly organized or insufficient for their ultimate purposes. CONAP is in the process of standardizing an accounting system for community use that should resolve many of these problems as long as extensive training accompanies its implementation.

Also, many of the concessions began to operate in 1999 or 2000 on a pilot basis and so the most complete data reported was from only 3 of the 4 concessions operating pre-1998. While not all of the data was totally complete and certain assumptions were required, comparisons and crosschecks between data and report style allowed for a fairly good understanding of the cost and revenue flows. The analysis for the Suchitecos, San Miguel and La Pasadita are quite thorough and should serve as a model for other cases. Cost and price data from the industrial concessions were obtained through discussion with the owners and buyers of wood from the concessions, but no financial data was contained in their forest management plans or other available documentation. The following conclusions can be drawn:

- ♦ **Revenue/Expense Ratios** may be the most appropriate financial indicator in these early stages of the forest management process and they are extremely

attractive in most cases. Those reported range from 1.26 to 8.36. There is good cost information for the different steps in the production chain. The information is in line with what one would expect. However only in the case of the Rio Chanchich (Suchitechos) and San Miguel do the data adequately include technical assistance and concession startup costs. Cost information on the actual startup of the concessions, forest management planning and technical assistance provided for free through the NGOs therefore is not as good as it should be. As a result of these up-front subsidies and the little capital equipment that is actually owned by the communities, fixed costs are extremely low. Variable costs are also extremely low when standing timber is sold. Thus the high revenue/expense ratios. As they move from selling standing trees to milled or finished product, overall revenues and costs will increase. The ratio can be expected to decrease in most cases. It would be, however, attractive for communities to accept a lower revenue/expense ratio if the overall net revenues increase or even if they remained the same, especially if the additional expenses occur within the community in the form of salaries and other benefits to the community members.

- ♦ **Net Present Values** have been calculated for two of the operations and are positive. On a per hectare basis, they are not substantial ranging from Q324,967 to Q1 million (see Annex 3). For these exercises, the initial startup costs of management planning and concession establishment were factored into the equation as well as a cost for outside contracted technical assistance, despite that to date these costs have been completely subsidized (with few exceptions). The discount rates used in the analysis were 4.4 and 10% (*Naturaleza para la Vida* and CATIE). Given commercial interest rates in Guatemala of between 25-30%, these may be considered low. On the other hand, since CONAP requires that these areas be used for forest management by, NPV comparisons with other land uses are not necessarily appropriate or necessary. NPV values within the forest management areas could also be expected to increase if NTFPs were included in the analysis, which they are not, and the future utilization of secondary species contribute to the overall profitability of the forest management activities as suggested in the forest management plans.

3.4. Opportunities

If done correctly forest management in the MBR can build on the successes to date to create the following major impacts.

3.4.1. *Conservation of more than 600,000 ha of forest*

There would be practically no more reduction in the area of forest in the Multiple Use Zone (800,000 ha) nor in the contiguous blocks of forest currently managed by the cooperatives and *parcelamientos* (14,000 ha). At least 348,000 ha of these forests would be producing timber and other forest products. These managed forests would act as true buffers around the adjoining parks.

3.4.2. *Viable forest enterprises improve the income of the communities, cooperatives and industries that operate them*

Community benefits not only include the generation of the net revenue stream, but also an important increase in the availability of paid employment for the communities. For the seven communities for which there are data for the 1999/2000 logging season, Q.1.83 million of net revenue was generated through forest management for wood products. An additional 10,455 days of non-skilled employment generated another Q.397,290 of income for the communities. Since several of the communities were in their first year of operation, not all of their area or the permitted volumes were harvested. Revenues and employment

opportunities can expect to increase in future years as forest management activities increase, as long as the species mix remains constant or becomes more diverse. Each community has its own way of distributing the revenues varying from the division of all of the benefits between the members after reserving sufficient operating capital for the subsequent harvest, to those that have decided to use the entire amount for community based development projects. In the case of Union de Maya Itzá, the community decided to use proceeds to establish a community transportation project through the purchase of two buses and one medium size truck. Carmelita built a bridge, San Miguel installed a potable water system and La Pasadita built a dispensary.

Employment generation has been a very important aspect of the economic gains of the communities. On average, forest management, felling and skidding generated 5 workdays per ha harvested for community members. The average wage, estimated from a sample of six communities, was Q38/day, a 50% increase over the average rate (Q25) paid for agricultural and other non-skilled labor in the communities. While for the 1999/2000 harvest season it is difficult to estimate the total employment generated through forest activities, based on concession operating plans, once all the areas are in production, over 60,000 days of rural employment will be generated. These will provide Q.2.3 million in revenues to the rural communities of Peten. Additional unskilled and skilled employment opportunities will be generated in the milling and value added processes but sufficient data do not exist to estimate these levels.

3.4.3. *Contribution to stability and economic development of the northern Petén*

By the end of this year the last of the 14 forest concessions in the MBR should be granted, reaching a total area under concession of 534,116 ha. Of this total area, 63% or 333,916 ha has been deemed as suitable for forest production and the remainder will be placed under protection by the concessionaire at their own expense. The annual estimated harvest area based on Ortiz (2000) and current management plans should reach 10,202 ha (see Table 1). The cooperatives and *parcelamientos* in the southwestern part of the MBR have another 14,420 ha of production forest under management with annual harvest areas exceeding 650 ha.

Ortiz estimates, based on the current management plans, that a total of 5.65 m³ of the leading 12 species can be harvested per hectare. Included in this volume is on average 1.07 m³ of mahogany. For the cooperatives the numbers drop slightly to 4.35 m³ for the 12 species including 0.88 m³ of mahogany. Extrapolating these figures over the entire annual harvest areas (*Area de Aprovechamiento Anual*), a total volume of 65,430 m³ including 52,961 m³ of secondary species and 12,469 m³ of mahogany can be expected to be harvested on annual basis. Approximately 25% of this volume will be derived from the industrial concessions and the remainder harvested on community forests.

Not only are these significant amounts of wood for the local economy, but because of sustainable forest management the wood is supplied as a steady flow upon which industry, markets and long-term alliances can be built, rather than the "boom and bust" of traditional forest mining.

3.4.4. *Revenues to public agencies available to finance conservation*

The potential tax revenues from the volume and area based stumpage fees can be found in Table 3. In addition to Q.2.7 million that should be generated by fees related to the extraction of wood products, there are a number of other revenues

that will accrue to the state¹. These will include taxes generated by the harvest of NTFPs, IVA, and income taxes. Reliable information on the amount of taxes generated from the harvest of NTFPs was not available. Rough estimates of taxes from xate alone reach Q.350,000 -- 450,000/yr and so these could be substantial if combined with other non-timber products.

Table 3. Potential annual revenues to CONAP from stumpage and area base fees

Forest Ownership	Volume of Valuable Species m3	Volume of Secondary Species m3	Taxes on Valuable Species in Q	Taxes on Secondary Species in Q	Total Tax Revenues in Q
Community Concession	8,126	34,887	568,820	369,802	938,622
Industrial Concession	3,117	13,240	1,271,736	398,524	1,670,260
Cooperative	1,226	4,834	83,868	41,572	125,440
Totals	12,469	52,961	1,924,244	809,898	2,734,322

Notes:

- 1) Revenues calculated from Table 2. Revenues include: Community concession—10% INAB tax over official prices plus Q10/ha fee to CONAP distributed over annual cutting area and volumes; Industrial Concessions --- 10% INAB tax over official prices plus “*tarifa*” to CONAP based on contracts; Cooperatives --- 10% INAB tax over official prices.
- 2) Calculations based on volumes per area as defined above.
- 3) No transport license fees, IVA or income taxes are included in these estimates.
- 4) No revenues from NTFPs are included.

3.5. Principales riesgos actuales

A pesar de los logros alentadores todavía existen tres serios riesgos que pueden echar a perder todo lo que se ha ganado.

3.5.1. *El fracaso financiero del manejo forestal por las comunidades*

Aunque casi todas las concesiones y cooperativas han tenido ingresos netos positivos hasta el momento, esto se debe en parte a que han iniciado el aprovechamiento en aquellas áreas de bosque más ricas en maderas preciosas. Además, han recibido subsidios generosos de fuentes externas. El reto es que a medida que estos dos fuentes de ingreso merman, compensarlas por otras y por la reducción en los costos de operación. De otra manera las comunidades pierden el interés en el bosque, lo que llevará a su destrucción.

3.5.2. *La desintegración social de los grupos de concesionarios*

La producción en conjunto es nuevo para los concesionarios y conlleva numerosas dificultades de organización, distribución de poder y beneficios, manejo de fondos, toma de decisiones y otros problemas sociales. Paradojamente, en algunos casos la asistencia que ha servido para levantar a las concesiones hasta ahora, arriesga a crear una dependencia peligrosa si se prolonga demasiado con un paternalismo que no deja espacio para el empoderamiento de los grupos, situación que puede frenar su maduración.

¹ The authors are aware of the small tax revenues that accrue to the municipalities included in the MBR even though they are expected to provide certain services to the communities located there. This issue is dealt with in the main evaluation report.

3.5.3. *La intromisión excesiva de las burocracias*

Uno de las razones de crear el sistema de concesiones era de que el estado no contaba con los medios para controlar la ZUM. Existe la tendencia de que la burocracia del estado y de los donantes trata de controlar excesivamente, obstaculizando así el desempeño de las iniciativas privadas y retrasando la apropiación por parte de los grupos. El reto es de encontrar el equilibrio justo entre el control necesario sobre el patrimonio nacional que ha sido concesionado, y la libertad que los concesionarios requieren para lograr su funcionamiento como empresarios. Es fácil estrangular esta criatura joven con controles, requisitos irracionales y hasta con la corrupción de algunos funcionarios, como se ha dado con tantos controles del estado.

4. The future of forest management in the concessions and cooperatives of the MBR

This section analyzes the current constraints to progress and suggests possible solutions, some of which simply require that decisions be made but imply no additional funding. Annex 5 presents a draft of a proposal of specifically what USAID could do to help overcome part of the constraints.

4.1. Management, administration and internal organization of the communities

4.1.1. *Constraints*

Only two of the twelve community concessionaires have any experience in business or in producing jointly. Therefore it is not surprising that most suffer from numerous organizational, administrative and management problems. However, the necessity of working together on a common enterprise has also had beneficial effects of uniting the community and encouraging new organizational arrangements.

4.1.1.1. Participation and transparency in decisionmaking

Unfortunately it is common that decisions, information and power are concentrated in a few individuals, usually those on the board of directors. Many of the other members of the group do not understand the business aspects and simply work for the wage. Usually those who make the decisions also manage the money and accountants tend to follow their orders. There is little delegation of authority. Some decisions that should be made by management are submitted to the general assembly, which often does not understand the issue. Although the groups have written rules to guide their operation, these are frequently not followed. Mistrust is common. Such a situation is fertile ground for corruption. Although it is extremely difficult to prove corruption, we heard sufficient anecdotes for us to conclude that corruption within the leadership of the communities is one of the major threats to stability of forest management by the concessions and the cooperatives.

4.1.1.2. Management and business skills

Many of the leaders of the concessionaires and the cooperatives might have good political abilities but they usually do not have the skills needed to operate an enterprise. Also they tend to be replaced periodically so that a new set of individuals start near the bottom of the learning curve. Almost none of the groups have created a position of a permanent manager. There are numerous examples of poor business decisions that have cost the groups dearly.

(purchase of expensive but inappropriate equipment, disadvantageous contracts, and questionable arrangements for sales). Accounting practices are inadequate for most groups. It is impossible to tell whether this is so because of lack of accounting skills or on purpose in order to facilitate corruption, but the effect is the same. The assistance that the NGOs have provided in this area has been insufficient. In many cases the Board of Directors who often resist any such controls has not accepted their advice.

4.1.2. *Recommended solutions*

4.1.2.1. Promote systems and procedures that make corruption difficult

Just as CONAP has the responsibility of assuring monitoring of forest operations, it should encourage the monitoring and transparency of the administration of the concessions in order to prevent their collapse and the subsequent destruction of the forest. However, because from a legal viewpoint the concessions are considered as private enterprises and the contracts are already signed, CONAP and the supporting NGOs are very restricted in what they can require with respect to internal organization and auditing. Any outside intervention might have to be limited to persuasion and education. (One possible means of circumventing this limitation might be strict compliance with FSC certification requirements, which include minimum standards for administration and a separation of responsibilities).

CONAP should encourage the following of all community concessionaires and cooperatives:

- ◆ Submission to at least one external audit annually contracted with a reputable firm. CONAP has already contracted for the preparation of minimum accounting standards and practices and intends to use these for the audits to be contracted in 2001. This process should be encouraged and training should be provided to the groups in the use of the new practices.
- ◆ Publication of the conditions of all sales of forest products after they have been concluded, including contracts, volumes and prices. Summaries could be posted on a special bulletin board in CONAP with details available for public access.
- ◆ Within the internal bylaws, a general assembly should be required at the end of each harvest season in order to explain the financial status of the year's activities and discuss the utilization of the revenues.

4.1.2.2. Create and train a two-tiered organization consisting of a Board of Directors and Management

The problem described in 4.1.1.2, whereby the community leaders who rotate through election also run the business, can be alleviated by encouraging an organization that follows a universal business principle: Separate the function of a board of directors and of managers in different individuals. Not only will this make corruption more difficult, but it will also increase the probability that the managers and other specialists will stay in their positions long enough to improve their skills. It should not be necessary that the top manager be a member of the community. If no one has the required qualifications an outsider could be contracted. This separation of responsibility needs to be formalized in the bylaws of each group. It will be an important step in professionalizing the community enterprise.

All members of the groups should receive enough training in the business aspects of the concessions so that they have a basic understanding of the

issues. But the members of the board and management should participate in more intensive and very practical training related to their functions.

4.2. External relationships

4.2.1. Constraints

4.2.1.1. Lack of coordination between the groups managing forests

There is insufficient coordination and exchange between the various groups managing forests in the Petén: the 10 community and 2 industrial concessions in the multiple use zone, the 5 cooperatives, 3 *parcelamientos* and the 3 municipalities in the southern Petén. Given common forest types and many common problems, all these groups could benefit greatly from closer alliances with their neighbors. One of the few effective steps in this direction appears to be in the cooperatives through their second tier organization (SCAF). Competition and institutional jealousies between the support NGOs may aggravate this lack of coordination and to date, these groups appear to have done little to foster coordination between concessions, especially those assisted by other NGOs. ACOFOP's initiative in sharing experiences between some groups is another worthwhile effort. In general, ACOFOP seems to have considerable potential in other areas as well, but is currently hobbled by the arrangement whereby its members are individuals from the communities, not the legal representatives. The ACOFOP leadership hopes to change this situation before the general elections near the end of this year.

4.2.1.2. Weaning of the communities from NGO and foreign technical cooperation has been slow

While the NGOs have done an excellent job on preparing the communities to manage their forest from the technical perspective, often the relationship NGO-concessionaire has almost developed to the point of being labeled paternalistic (the extreme being San Miguel). It is in the NGOs' interest for this relationship to be successful and long lasting, therefore strong pressure to transfer skills on business management and administration have been lacking in several cases. We question the NGOs' capabilities to provide some of this type of technical assistance, as they have not succeeded in adapting to the changing needs of technical assistance required by their clients. Granted that time has been short for making this transition, but the scarcity of staff with business, processing or marketing experience in the NGOs indicates that the transition is likely to be slow and painful. Failed business ventures with pot-pourri in Cruce a Dos Aguadas, *corozo* palm oil processing in the buffer zone, and a sawmill and carpentry shop in San Miguel do not inspire confidence.

In all fairness one must remember that the concessionaires are not obligated to take the advice of anyone. We have been told that the most popular NGOs are those that intervene the least in the business dealings. For example, NPV and the CATIE/CONAP Project had to use the threat of ending their support to the Suchitecos in order to pressure them to reinvest a large proportion of their earnings rather than to distribute them.

In other cases there appears to be an over dependence on the NGO on activities that the community itself should be capable of carrying out. This is the case of the preparation of the POAs and reports. Many of the communities appear capable of carrying forward these processes but yet some of the NGOs intercede, almost as if to retain their involvement and importance in the process. Likewise, there have been some complaints by communities, especially through ACOFOP, that the NGOs, while having access to all the financial resources, provide only minimal services and information that do not respond to the needs

of the concessionaires. Although not all accusations made by ACOFOP in its “internet war” of late 1999 and in its proposed new model of assistance seem justified, some of the points merit serious consideration.

4.2.1.3. Difficult relationship between communities and buyers or industry

At some point along the production chain, communities must deal with buyers of their product. Buyers may be industry located in Guatemala or foreign companies. To date this relationship has taken place in two basic modes:

- ♦ The sale of a product (standing trees, logs, flitches or boards) to a buyer, national or international. This often includes the community contracting for extraction and/or milling services.
- ♦ The entering into “*medias*” with a local company in which case the costs and benefits of the extraction are shared between the producer and buyer.

In both of these modes there have been cases of the industry paying part in advance so as to provide working capital to the communities (Uaxactún, Laborantes del Bosque). Given that most of these industry / community relationships are only one or two years old, their dynamic in general is surprisingly positive and essential to the future of both. The NGOs have been essential to establishing these relationships, which would probably not have occurred without them.

Certain areas of concern do exist, however, based on numerous anecdotal accounts that are difficult to adequately document. These areas include: the violation of written agreements between communities and buyers, by both sides; the gouging of costs on contracts that are based on “*medias*”, an unfair distribution of stumpage fees under the “*medias*” system, and support NGOs possibly influencing selection of buyers and negotiating system based on too little or erroneous information. While it is hard to verify these types of accusations, to our knowledge none of these relationships are for longer periods than the current harvesting period and numerous flip-flops from one buyer to another have occurred, which indicates an overall immaturity of this process.

4.2.2. Recommended Solutions

4.2.2.1. Let communities choose

While recognizing the importance of NGO participation in the consolidation of forest management activities in the forest concessions and cooperatives, CONAP with USAID support should limit their support to communities through the NGOs. Communities should receive a maximum of two years of free assistance. This will allow for the development of the forest management plan and two annual census and POAs. Starting in the third year, the forest, through the profits realized by the communities from the extraction activities, should pay for a gradually increasing share of any assistance they might need. At that time the communities should be given the right to choose from which NGO or private sector agent they wish to purchase services and of which type. Although in year three USAID through CONAP might still have to finance a major proportion of these costs, this proportion should decrease each year so that by year five outside subsidized support would be minimal. In order to improve their understanding of the choices available to them, interchanges of experiences by the communities should be held at least once a year, three months after harvest. CONAP should organize these events.

4.2.2.2. Improve negotiation skills and contract management skills

Improved administration and management skills on part of the community groups should be part of the future focus of support as discussed in 4.1.2 and proposed in Annex 5. Special emphasis should be placed on preparing the community groups to interface with the private sector, including their technical assistance provider, buyers and business partners. These groups need to fully understand their cost structure, and contracting mechanisms that can protect their interests, while having a realistic understanding of what is feasible for the industry. If increased understanding of the timber industry can be interjected within the system, better decisions can be made by the communities and more realistic contracts negotiated.

4.2.2.3. Encourage longer-term contractual relationships with industry or buyers

Longer-term relationships between the communities and industry and/or buyers are essential to promote investment in secondary processing, the development of new products and the transfer of technology. The best basis for these relationships are positive experiences (usually expressed as profits) and trust, something that is built up over time. For trade to develop there must be continuity of quality, price and volumes of lumber. At present, the experience is selling annual allowable cuts or smaller lots of wood. CONAP with USAID technical assistance should support development of mechanisms for longer relationships. The provision of information as recommended above is one of these mechanisms.

Multi-year harvest plans with detailed volume information may also prove useful to foster longer-term contracts. Their up-front cost could be shared between the communities and buyers if necessary. Buyers have commented that having better projection on volumes would be very attractive to them.

Another recommended mechanism is the establishment of a voluntary review and arbitration council. The council should be formed by CONAP, USAID provided technical assistance, and representatives from industry / buyers and communities. Participation of ACOFOP or other NGOs could also be included. The mandate of the council should include the development of model contracts protective of the interests of both communities and industry, provision of solicited oversight of contracts, arbitration in case of conflicts, contracting for audits to determine reasonable price levels in case of contracts going “*medias*”, review or establishment of annual price levels since they cannot be included in initial contracts, among other tasks.

4.3. Product and market development to utilize secondary species

4.3.1. Constraints

4.3.1.1. Over dependence on mahogany and *cedro* and the export of green lumber

At present, the abundance of mahogany and *cedro* determines the financial quality of the forests of the MBR. As one representative of La Pasadita put it, “Our forest has no ‘wood’ as we have less than 0.4 m³/ha of mahogany and *cedro*.” Overall production in a number of the community concessions has been based on over 80% of these most valuable species. This is in spite of the fact that the harvestable volume of these two species combined is often below 1 m³/ha. Of course triple the price of these two species over the going price for lesser known species (\$1.80-2.00 compared to \$0.66) and buyers willing to advance operational cost to lock in the purchase of these species explains this phenomenon. The situation is worrisome as it may jeopardize the commercial

sustainability of these species in the forest as it makes sound economical sense to concentrate production on species with such high margins (Howard et al. 1996). Ortiz (NPV 2000) has developed a short list of 12 leader species for the MBR and estimated their volumes based on the forest management plans. He found that over 80% of the volume available in the forest is from other species with high economic potential.

4.3.1.2. Antiquated industry not prone to invest given insecure environment

By visiting the three largest forest industrial complexes in the Peten, one can quickly appreciate the limited production capacity of the industry, especially for value added products that may utilize secondary species. While sufficient primary milling capacity exists, the equipment is quite old and requires investments to improve recovery rates and reduce waste. Facilities and equipment for value added processing are extremely poor.

At the same time, given the lack of security in being able to lock in long-term raw material supply and the high commercial interest rates (25-30%), little new investment to upgrade the facilities is taking place. The exception to this is an additional dry kiln at PROFIGSA financed in part by a buyer.

4.3.1.3. Diverse species composition challenges industrial and marketing capacities

Species diversity in tropical forest is well known to be an obstacle to forest management. Forest management plans in the MBR having identified more than 150 different species with less than 30 m³ of wood volume over 25cm/dbh. In the case of Carmelita for example, only 6 species registered over 2 m³/ha in any single forest type and the vast majority of the 143 species inventoried registered under 0.5m³/ha. At the same time, the difference in wood properties and characteristics exacerbates the difficulty of processing a broad array of species. Specialized sawing equipment, drying facilities and species-specific kiln schedules, pesticide treatments and secondary processing strategies must be acquired or developed for the different variety of wood densities and types. Complete vertical integration from forest management to end product marketing is unlikely to be widely successful in the MBR given the limited industrial and entrepreneurial capacities that exist.

In the case of many of the smaller concessions and cooperatives, additional constraints are placed on diversification by the extremely small size of the forest under management and the limited annual harvest areas. In the case of San Miguel for example, with only 80 ha/yr to be harvested, many species may only be represented by 1-3 trees each harvest. There is little hope that these trees will be of high interest to buyers and with luck can only be sold at a minimal price. One attempt to tackle this problem is the creation of the Sociedad de Cooperativas Agroforestales (SCAF) which markets logs from a number of cooperatives in order to increase volumes of each species and prices.

4.3.1.4. Non-timber forest products (NTFPs), another opportunity and challenge

With such diverse forest, income from NTFPs and forest services like ecotourism becomes very important to the financial viability of the forest enterprise. Although NTFPs, especially xate and allspice, are important income producers, they are still harvested in traditional fashion without rational management. Partly this is because management prescriptions aimed at sustained production (especially time between harvests under different conditions) are not well known, and partly because of the difficulty of controlling the numerous collectors who still live by a tradition of free access. Moreover,

unlike timber, the NTFPs are harvested on an individual, not a community basis, thus complicating control. Forest management plans in general only give very general guidelines for the management of NTFPs and control in the forest still seems to be minimal. Despite the importance of traditional harvesting of NTFPs in some areas, they do not commonly appear in annual reports or economic analysis.

4.3.2. Recommended solutions

4.3.2.1. Strategic Business Relationships

The incipient tripartite strategic business relationships between

- ◆ communities low on capital and technological and managerial know-how,
 - ◆ current industry that is antiquated and under-capitalized, and
 - ◆ outside buyers and investors
- must continue to be strengthened.

Communities should not aspire, given their low level of management capacity and access to capital, or be encouraged to be producers of finished products, although in exceptional cases they may become sellers of rough sawn mahogany and *cedro*. Most portable (Woodmizers) or other sawmills accessible to community groups are not appropriate for the high valued mahogany and logs, although they are ideal for processing residual woods or some of the lower value logs. Higher quality raw material is best sold to industry with the appropriate technology to achieve high recovery rates and product qualities. Imperfections in the milling process of 1/16" along the length of a 16-ft board can cost 25-50% losses in recovery and result in even greater negative impacts on the final margin. Preferably longer-term sourcing contracts should be underwritten so that industry would have more incentives for investing in localized, when feasible, or centralized processing facilities.

In turn, industry cannot be complacent with the marketing of mahogany and *cedro*. They should develop longer-term business plans that identify diversified products and markets that incorporate increased volumes of secondary species into their product mix. They can do this by utilizing the high margins they receive on mahogany and to finance the required investments. Industry should likewise benefit from the fact that they can offer relatively high volumes of mahogany and *cedro* to attract international investors and buyers to form joint ventures.

4.3.2.2. Diversify production to match managerial capacity

Industry must lock in sufficient supplies of raw materials of several species that they can profitably utilize. This may take the form of assisting the development of local associations of concessionaires or forming strategic business relationships with several concessions that have similar forest types and species mixes. Vertical integration should not be encouraged but rather an increasing number of specialized secondary processors should be encouraged in order to use an increasing number of species suited for different processing facilities, end products and markets. Management capacity of both industry and communities is key to value added processing and product and market diversification. Otherwise, the returns to the raw material will be consumed by inefficiencies. While mahogany and *cedro* can absorb these inefficiencies, the secondary species cannot. (See Annex 5 for the assistance needed to make this happen.)

4.3.2.3. Use certification as a tool to open new markets.

Unfortunately to date, attention has been placed on certifying forest management activities rather than utilizing certification as the market incentive tool that it was designed to be. As this time, only the wood sold to PROFIGSA and the Suchitecos can be exported as certified without outsourcing contracts from Smartwood. Industry should be encouraged and assisted in their efforts to take advantage of the opportunities created by having large community and soon-to-be industrial concessions certified in order to access new markets and attract buyers and investors (see proposal in Annex 5). Price premiums for certified mahogany and cannot be expected but market access at higher prices than currently paid for secondary species is possible.

4.3.2.4. Non-timber forest products standards and monitoring

CONAP should be encouraged to develop technical management standards for xate and allspice, including norms to avoid harvest of poor quality xate leaves that are likely to be rejected by exporters. CONAP should then contract dissemination of these norms and training for communities and the NGOs that support them. Monitoring and evaluation of the implementation of the norms should be integrated with CONAP's current monitoring of logging in order to keep costs low. This may require and institutional reorganization of CONAP placing NTFPs under the Forest Management unit rather than where it currently reports to, Wildlife and Flora.

4.4. Financial viability of forest management

4.4.1. Constraints

4.4.1.1. Subsidies for technical assistance to communities

Until now, all of the technical assistance for community concession and cooperatives has been provided free of charge by CONAP and participating NGOs (mostly paid for by USAID). This assistance has been crucial to jump-start the process of instilling sustainable forest management in the MBR. It also has served to maintain costs relatively low for most community forestry activities and has allowed the communities to benefit from large initial but perhaps not realistic incomes during the first years of their forest management activities. This has served as an effective strategy to spur initial interest. Increased efficiencies and the introduction of additional species to the market may maintain these strong early income streams. However, it may have also served to develop an unsustainable dependency of the communities on the subsidy and a specific NGO.

At the same time, the NGOs may continue their dependency on USAID/CONAP support unless an explicit calendar of decreasing USAID support to them is developed. In the case of some NGOs, they are also generating income by selling service to industry (i.e.: NPV was contracted to prepare PROFIGSA's management plan). This may be a viable example to follow in the case of community forest as well.

4.4.1.2. Investment capital for both communities and industry is a constraint to value added processing

While heavy front-end subsidies have served to capitalize a few community concessions, the high cost of credit within the local financial system will yield most investment opportunities financially infeasible for both industry and communities. Without further investment in capital equipment and specialized

technical assistance, value added processing and the introduction of additional species to the market is unlikely to happen. While BANRURAL has loaned relatively low amounts of money to two communities at lower than market rates this is not likely to be an option for all communities and industry. Investment levels vary drastically by forest size, product lines and so on. Estimates to capitalize the average community concession with a portable sawmill for processing lower quality logs, extraction and transport equipment can run nearly \$100,000. For industry to acquire the necessary molders, stellite tip saws, dry kilns and other equipment to improve their recovery rates and to process secondary species into linear products such as moldings, flooring strips and decking would require at least \$300,000/company.

4.4.1.3. Mahogany and *cedro* pay for forest management

Current forestry operations are only financially attractive due to the presence of mahogany and *cedro* in the forest. Several of the smaller cooperative forests, as well as San Miguel and La Pasadita hold very low volumes of these species. The forest management plans generally establish only one annual harvest area per year and few of the plans vary the size of the harvest area based on the stratification of the different forest types. Annual harvest areas are also distributed according to two criteria: abundance of these valuable species and cost of extraction (the more accessible are cut first). This creates much of the same scenario as the subsidized technical assistance, initial income streams are far more attractive than those expected in the future, unless there are major increases in the number of species utilized and in the margins they produce. The margin per board foot on mahogany compared to all lesser known species other than *manchiche*, is approximately \$0.80 versus \$0.05 according to cost and price data gathered. At such low margins for lesser-known species, high volumes would have to be harvested just to cover the fixed costs even though these are low due to the front-end subsidies. Centro Maya and the community of La Colorada incurred costs of \$26.25/ha to prepare the POA and commercial census for 2001. At current values paid for lesser-known species, 1.4 m³ would be required to cover this cost. Production schemes with abundant mahogany on the other hand quickly cover fixed costs and produces high returns.

Fortunately, with value added processing many of the secondary species can return yields similar to those of mahogany. PROFIGSA for example, sells flooring strips: dried, planed and molded of a few "non-valuable" species for nearly \$3 /bdft yielding a margin similar to that of mahogany. (Personal conversation between John Nittler and Israel Giron, Manager of PROFIGSA). The fact that margins for lesser known species are currently very low should not be seen as the fatal blow to forestry but rather the challenge for development.

4.4.2. Recommended Solutions

4.4.2.1. Technical assistance should be paid by the forest through the community

While recognizing the importance of the NGO participation and donor support towards the consolidation of the forest management activities in the forest concessions and cooperatives, these costs have not been adequately addressed in the monitoring and evaluation of the project. Therefore, all subsidized technical assistance costs should be controlled in the future. This will allow the project to determine the returns on this investment by the donor and the benefits derived by the communities. It will also allow for comparative analysis of the technical assistance providers (NGOs) to determine the

effectiveness of their different approaches to development and technical assistance delivery.

Technical assistance subsidized by USAID should ascend to the next level of product and market development, entrepreneurial training for communities and industry alike, and should be provided by institutions capable of doing so.

4.4.2.2. Attract Outside Capital, Technologies and Expertise

In the era of venture capitalist and environmental awareness, a number of green funds and investors have surfaced to capture profits while protecting the environment. The concessions working in the MBR should use their intrinsic advantages of being certified, largely community owned, and having interesting volumes of valuable species that produce positive financial returns to attract outside investors. Investors should be sought that can provide additional capital, technology and expertise. Existing forest product companies with market access in addition to know-how can make ideal investors. USAID should provide technical assistance in order to facilitate these linkages. This will include providing training and assistance to local companies and communities in order for them to become eligible for attracting outside investments (transparent accounting systems and financial books, increased managerial capacity, secure raw material supplies, improved operational procedures, business plan development, etc.), facilitating contacts with funds and investors, and providing oversight to the contract development process, especially in the area of community concessions.

Stability in the current concessions and policies is vital in order for this to happen. Discussions about expanding the El Mirador Park or that CONAP limits annual harvest areas because they are concerned about the environmental movement criticizing large harvest areas revive a climate of uncertainty just as stability is being achieved. The development of markets and production capacity to introduce new species and product in the markets can easily take 2-3 years and produce returns on investments after another 5-8 years. If the concession framework is not seen to be viable for the next 10 years without major changes in policies, investors will not even consider Guatemala. CONAP is key to making this happen.

4.4.2.3. Capitalize operations through mahogany and *cedro*

Current stocks of mahogany and *cedro* should continue to be used to capitalize the industry and guarantee forest management as a long-term economically attractive activity. The interest of Jeffrey Hunt of Plywood and Lumber Sales, Inc to invest in Guatemala locking in future supplies of various species is one example. His willingness to invest in kiln drying capacity at PROFIGSA is an indication of his interest in non-traditional species, even if he makes these investments against the guarantee of mahogany sales. There is very little emphasis on the long-term vision and economic viability of the industry. Given current mahogany volumes most economic data looks extremely promising. However given the doubts about the regeneration of mahogany and other valuable shade intolerant species, there should be major concerns about the sustainability of the current forestry model and its financial viability.

The current volumes of mahogany should be seen as a tremendous opportunity to provide the economic basis for forest management to work and it should not be foregone. In Bolivia for example, mahogany is all but commercially extinct in most of the areas which once held volumes equal or greater to those found in the MBR. While it provided the road infrastructure for future forest management

activities (and spontaneous colonization), its exploitation did not capitalize nor prepare industry for the post-mahogany era in which they now struggle. Unfortunately, much of the capital generated through the exploitation of mahogany in Bolivia went to investments in livestock and agriculture to the detriment of the forest.

This concept of planning for reduced mahogany volumes in the future could take on the form of concrete business planning for utilization of these early high revenues streams to be reinvested in value added processing. On some areas the increased and more efficient utilization of non-timber forest products (either directly by the community or through contract with outsiders as done by Carmelita and Uaxactun) and other activities may offset lower incomes from mahogany in the future.

Policy should encourage reinvestment in the forestry sector and discourage investments in sectors detrimental to the forest. USAID should assist this process through the previously discussed assistance to product and market development, and increase managerial capacity, as well as encouraging policy changes (see Annex 5). (One of the most powerful effects of policy would be to avoid the instability for investors created by frequent changes of laws and regulations affecting forestry, for example through the threat of an expanded Mirador Park).

4.5. Technical sustainability of forest management

4.5.1. Constraints

4.5.1.1. Permanent Plots

Within the forest management plans, there are numerous assumptions that must be verified by data collected over the upcoming years. A system of permanent plots has been prescribed in the management plans and to an unascertained level, been established in order to assure that growth and yield, regeneration, and other silvicultural data are collected. It is crucial that these plots be correctly established, monitored and interpreted in order to adjust prescriptions based on reliable data. At present CATIE Costa Rica is responsible for pooling and analyzing the plot data. The CATIE/CONAP Project has produced standards for establishing and measuring plots (Pinelo 2000). What are lacking are guidelines for choosing location of plots, treatments and numbers to be established by forest type. It cannot be expected that the concessionaires, cooperatives or NGOs finance this type of applied research and it needs to be subsidized, at least in the short to mid-term.

4.5.1.2. Annual Operational Plans and harvest reports

Although after a couple of years of assistance, communities have made surprising progress in the development of forest management plans and the annual planning process, this process still needs to be made more efficient. Some POAs are prepared, presented and approved at the last minute, thus undermining their primary purpose. If used correctly, the POA allows for planning of resource allocation, harvest layout, and production and marketing strategies. CONAP has stated that this year they will require that the POA be submitted by October 15 in order to offset some of these problems. It may be in the interest of the groups to even do the POA for the subsequent year during the dry season while logging is going on.

There appears a need to step back and analyze the planning and operating requirements for forest management. Without entering into detail, there appears to be excessive duplication and unnecessary work involved within the

established requirements. For example, separating out Environmental Impact Assessments from forest management plans seems an unnecessary division when the additional EIA requirements could be incorporated into the forest management plan. Likewise the POAs and post-harvest reports regurgitate much of the information in the forest management plans. Instead of simple tables that can easily be aggregated and brief narratives, these documents tend to be vague, wordy and non-uniform making comparisons difficult. Reports on production of non-timber products are particularly confusing. Nevertheless, tremendous gains in forest management planning have been made and credit should be given to CONAP and the support NGOs. There are however numerous areas in the plans that are less than adequate, especially those dealing with the financial aspects, marketing, processing, wildlife and NTFPs. Perhaps if the peripheral requirements mentioned above that do not contribute to the gist of the plan were reduced, the plans in general would become more practical.

4.5.1.3. Efficiencies, recovery rates, residues and secondary species

While it is hard to generalize on efficiencies and recovery rates, our general impression after visiting several mills and logging operations is that operations are inefficient and recovery rates are quite low. Efforts to utilize and extract branches and other chunks of wood left in the forest are positive. It was claimed that 30% more wood had been recovered through this initiative. Unfortunately however, recovery should be a primary focus and not an after the fact strategy to recuperate lost raw material. Improved bucking, taking into account end product lengths and characteristics and defect within the log, are needed to improve recovery rates, both in terms of the raw material and also in financial returns. Similar fairly easy but important operation improvement practices are also needed in the milling processes in order for the mills to be more efficient. The inefficiencies in the current operations can be covered by the high value and margins associated with mahogany. In order to produce and market secondary species profitably, these inefficiencies will have to be eliminated from the system.

4.5.2. *Recommended Solutions*

4.5.2.1. Analysis and utilization of data from permanent plots

The CATIE/CONAP Project should be assigned the task of preparing guidelines for choosing location of plots, treatments and numbers to be established by forest type. That project should also be put in charge of implementing these guidelines and controlling quality. All analyses and interpretation of the data must be shared with the institutions that have produced the plot data and credit must be given accordingly. These data are ideal subjects for Master thesis by Petén students at CATIE.

4.5.2.2. The required planning and reporting processes should be revisited

A commission to revisit the planning process should be convened with participation of the concessionaires, NGOs, and CONAP. It should analyze several management plans, EIAs, POAs, and annual reports and try to determine which information is indispensable and what amounts to bureaucracy and administrative requirements that can be reduced in scope or eliminated. The commission should balance CONAP's needs with the limited capacity of many of the community concessionaires. Simplifying the process by developing forms that communities can complete for the annual reports, for

example, while not sacrificing the underlying integrity will assist the communities in becoming less dependent on outside technical assistance.

4.5.2.3. Efficiencies

USAID should provide training, not necessarily free of charge, to industry and community groups on how to inject efficiencies into their operations to increase recovery rates and foster the utilization of secondary species. The training should begin in the forest addressing felling and bucking problems, stacking and storage of logs and sawn lumber, and end in the mill by focusing on quality control, plant layout and machinery maintenance and operation. This will be extremely important for the communities that are acquiring their own mills since this is a new endeavor for them.

4.6. Information management

4.6.1. Constraints

4.6.1.1. Lots of documents, but access is difficult

A surprising amount of written information has been produced but because it is dispersed between numerous institutions it is complicated and time consuming to find. One of the results is repetition in slightly different formats. A previous initiative to create a documentation center in CONAP failed as documents gradually disappeared.

4.6.1.2. Inadequate interchange of experiences between NGOs

The participation of all actors financed by USAID in one joint annual work plan has done much to improve communication. However, institutional and personal jealousies still cause resistance to sharing information between the NGOs, especially negative experiences. Communication between the NGOs and industry is even worse.

4.6.1.3. Inadequate communication with decisionmakers and individuals with influence

The successes of forest management in the ZUM are astounding. Yet the outside world knows little about it even though the process has been well documented.

4.6.1.4. Too many studies, too little application

Bookshelves are full of expensive studies, reports, strategies, plans, guidelines, proposals, statistics and other documents, many of which have never been applied and/or are irrelevant. A costly culture of generating documents with unclear application keeps many technicians and consultants busy in the NGOs, CONAP and USAID. But some other information needed to make informed decisions is scarce (i.e. about processing, marketing, finances).

4.6.2. *Recommended solutions*

4.6.2.1. Create a documentation service

Create a documentation service in CONAP with supervised access, possibly as part of the Centro de Monitoreo y Evaluación (CEMEC). Require all actors who produce documents and maps relevant to the protected areas of the Petén to deposit two paper copies and one electronic copy in this center. One set of copies is to be forwarded to CONAP's documentation center in Guatemala City. The electronic catalog of this center (in MICRO-ISIS) in the Petén should be linked to the documentation centers in CONAP-Central, INAB-MAGA and USAC-CEDIA, thereby providing easy access to tens of thousands of references. Emphasis should be on obtaining electronic copies whenever possible and storing these on hard drives as well as on writeable CDs. Selected documents should also be made available on a web page established by CONAP to disseminate results of their activities.

4.6.2.2. Stop financing studies that have no clear application

During the process of making the annual work plans, USAID needs to be more critical in financing consultancies and the preparation of documents. Only finance those that have a very convincing practical application.

4.7. Administration by CONAP of forest management in the concessions and cooperatives

4.7.1. *Constraints*

4.7.1.1. No practical sanctions for minor infractions

The regulations and contracts that govern the concessions and forest management by the cooperatives have no provision for minor infractions. The only sanctions are the suspension or cancellation of operations, which are detrimental to both parties and are only appropriate for major infractions. Nor are these sanctions credible because of the political consequences of canceling a contract with a community or cooperative.

4.7.1.2. The urge to control

Remember that the original impetus for creating the system of concessions was the incapacity of the government to control the ZUM. Now that the concessions and cooperatives are showing success, CONAP and other organizations are harassing and stifling operations with increasing inspections, reporting requirements and controls, all of which increase costs and many of which are unnecessary. The triplication of monitoring is only one example. We discovered that the UMI Cooperative had been subjected to nine inspection missions during the first eight months of this year (3 by CONAP, 4 by USAID including Chemonics, 1 by SmartWood, 1 by INAB/PINFOR) – all this for a harvest area smaller than 200 ha. Increasingly complex and prohibitively expensive monitoring is being proposed for the MBR (i.e. Imbach et al 1999, CONAP 2000).

4.7.2. *Recommended solutions*

- 4.7.2.1. Amend the regulations for the concessions and the contracts with specific sanctions for minor infractions

CONAP Region 8 should prepare a list of infractions and the corresponding sanctions, including fines, and submit to the CONAP Board for approval as an amendment to the regulations for the concessions (*normativas*).

- 4.7.2.2. Streamline monitoring

Agreement needs to be reached between CONAP, USAID and SmartWood so as to combine their efforts at monitoring and reduce the currently prohibitively expensive inspections to the minimum needed to measure compliance. We suggest that all monitoring be delegated to SmartWood or another outside FSC-approved entity.

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Annex 1. Primary contacts

Institution	Name	Job title
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Proyecto CATIE/CONAP	Fernando Carrera	Coordinador
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	Oscar Cobarrubia	Accountant
Baren Industrial	Carlos Barrios Quan	Gerente
Chapas del Petén	Emilio Tajer	Gerente
Proyecto PMS	William Ordoñez	Coordinador
	Ivo Bokor	Asesor
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	José Contreras	Forester
	Scott Stewart	Peace Corps Volunteer
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Proyecto CATIE/Olafo	Reginaldo Reyes	Coordinador
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Members of the Board of Directors of concessions and cooperatives	Carmelita	
	San Andrés	
	Suchitecos	
	Arbol Verde	
	Uaxactún	
	Unión Maya Itzá	

Annex 2. Residual value of mahogany and lesser known species

Residual Value per Cubic Meter of Mahogany and a Typical Lesser Known Species Under Three Seperate Sourcing Mechanisms							
		Community Source		Community Source		Industry Source	
		Community Processing		Sold to Industry		and Processing	
		Mahogany	Secondary	Mahogany	Second	Mahogany	Secondary
Gross Revenue in Q.		2375.4	1112.8	2375.4	1112.8	2375.4	1112.8
Forest Mgnt Costs(FMC)		75	75			75	75
Raw Material Costs(RMC)		78	18.6	920	154	408	29.1
Extraction/Milling Costs(EMC)		672	672	672	672	672	672
Transport/Export Costs(TEC)		119	119	119	119	119	119
Total Costs		944	884.6	1711	945	1274	895.1
Expected Return(ER)		236	221.15	427.75	236.25	318.5	223.775
Residual Value		1195.4	7.05	236.65	-68.45	782.9	-6.075
Note: Gross revenues based on 40% FAS, 30%C1, 30%C2 at prices respectively of Q.15, 11, and 6 for mahogany and Q.7, 5, and 3 for secondary species							
1Meter3 of standing timber = 200bdftDoyle							
FMC based on \$30/ha for POA and road construction or maintenance							
RMC based on fees paid to CONAP and INAB or purchase price from communities of Q.5.1/mahogany grade A, and Q4.1 grade B logs and Q.7/bdft Dolye of secondary species-all grades.							
EMC based on Q3.25/bdft Doyle							
TEC based on Q.7/bdft for FAS and CI, C2 sold in local markets							
ER based on 25% return on costs, fixed costs asorbed in other costs							
Recovery rate from 1m3 is 50% or 214bdft							

Calculations for Proceeds				Calculation for Raw Material			
	Mahogany	Secondary			920		
Fas	1284	599.2					
C1	706.2	321					
C2	385.2	192.6					
	2375.4	1112.8					

Annex 3. Summary of available cost and revenue data for forest management by the communities

Summary of Financial and Economic Data Available for MBR as of August 2000

Concession/ Cooperative	Total Area (ha)	Producti on Forest (ha)	Annual Cut (ha)	Year	Source of Data	Expenses Quetzales	Revenues Quetzales	Revenue expense ratio	Net Present Value Quetzales	Per Family Income Quetzales	Production Scheme
San Miguel San Miguel	7,036	4,800	80 ????	1999 1998	Annual Report RFMP	133,468	175,824	1.32 1.69	324,967		Flitches Flitches
La Pasadita	18,817	12,043	306	1999	Annual Report	196,478	247,140	1.26			Alliance
San Andres	51,939	48,883	1000 1,120	2000 2001	Balance sheet Balance sh.-est.	676,388 741,515	1,174,437 1,208,446	1.74 1.62			
Rio Chachich Rio Chachich	12,217	10,000	400 400	1998 1999	Annual Report Annual Report	676,241 702,023	1,230,882 1,341,547	1.82 1.91	1,058,838	27,243	Rented Services Alliance
La Colorada La Colorada	22,067	15,866	110 100	1999 2000	POA-estimate Annual Rep.- est.	36,080 67,221	90,498 262,345	2.50 3.90			Alliance Alliance
Cruce a la Colorada	20,469	17,621	100 100	1999 2000	POA-estimate Annual Rep.- est.	33,181 64,827	160,303 390,208	4.83 6.02			Alliance Alliance
Cooperatives											
Bethel Bethel	4,149	2,379	100 105	1998 1999	POA-estimate POA-estimate	49,449 27,147	141,540 106,964	2.86 3.94			Rented Services Rented Services

Notes:

Annual Report, based on actual numbers unless
noted differently

POA= Annual Operation Plan, based on projections

Balance Sheet, based on actual numbers unless
noted differently

RFMP= Revised Forest Management Plan, projections base on 4
years experience

Annex 4. Information System for the Protected Areas of the Petén ([SI PETEN](#)) on CD

The CD with the SI PETEN information system (*Sistema de Información para las Areas Protegidas del Petén*) contains the complete texts of many of the documents utilized in this study. It is updated periodically by integrating new electronic files that might be of general interest to those working with the Peten protected areas. Readers are encouraged to contribute relevant files.

The latest version of the CD can be requested from:

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Annex 5. Proposal for strengthening forest management in the MBR

See separate document

MS Word file: Proposal concessions4.doc

Annex 6. Methodology applied by the consultants

Se utilizó una metodología semejante a la descrita a continuación:

Era un pastor y sus ovejas al costado del camino. Venía pasando una Cherokee reluciente con un muchacho adentro. Camisa Hugo Boss, zapatillas Nike importadas, etc, etc, etc. La Cherokee para y el joven le dice al pastor que estaba al costado del camino: "Si adivino cuantas ovejas tiene, me regala una?"

El pastor lo miró, miró a las ovejas pastando y dijo: "sí."

El muchacho volvió al auto, conectó la computadora portátil, entró en una página de la NASA en el Internet, miró la superficie de la tierra desde el satélite, encuadró el area donde estaban parados, generó un banco de datos, unos 50 gráficos en excel, llenó de matrices y determinantes, un reporte de 150 páginas impresas en su mini impresora hightech. Se dirigió hasta el pastor y le dijo: "Usted tiene 1.343 ovejas en el pasto.."

El pastor le respondió: "Muy bien, acertó. Puede llevarse su oveja..."

El muchacho fue a buscar su oveja y la puso en la parte de atrás de la Cherokee. Luego el pastor le dice al muchacho: "Si yo adivino su profesión, usted me devuelve la oveja?"

El muchacho le dijo que sí.

Entonces el pastor le dice prontamente: "Usted es consultor, no es cierto?"

Sí, dijo el muchacho sorprendido. "Como adivinó?"

Muy facil, respondio el pastor:

- 1) Usted vino sin que yo lo llamara.
- 2) Me cobra una oveja para decirme lo que yo ya sabía.
- 3) Y es obvio que no entiende nada de mi negocio ya que lo que agarro fue mi perro!